Center for Applied Molecular Genetics Selection

Director: Robert L. Park, Ph.D., Brigham Young University, Provo, Utah
Phone 378-6871, Fax 378-4211, email: robert_park@byu.edu

The center investigates genetic markers associated with desirable traits in swine and cattle and proposes to market animal screening capabilities.

Background

Established in 1995, the main focus of the center is to identify specific DNA probes related to economically important qualitative and quantitative genetic traits in domesticated animals, e.g., cattle and pigs. DNA markers for traits such as back-fat thickness, feed conversion efficiency, and growth rate are of interest for swine, whereas in dairy cattle markers for annual milk and protein yield traits are being researched.

Technology Development Progress

Useful DNA based probes are being developed and screened. The technologies including random amplified polymorphic DNA (RAPD), restriction fragment length polymorphisms (RFLP) and sequence characterized amplified regions (SCAR). The objective is to identify probes that correlate with useful qualitative and or quantitative traits.

Swine markers showing correlations with specific traits are: back-fat (9), feed intake (4), and growth rate (11). During the current year, further testing has revealed that four back fat markers, two feed intake markers and six growth rate markers will be useful.

The search for DNA markers in dairy cattle to correlate with milk and protein yield, has resulted in the identification of 3 useful markers.

Highlights and Accomplishments

The economic value of the DNA markers and the methods for detecting them lies in the ability to identify desirable breeding animals before they mature and produce offspring thus reducing breeding costs significantly. Contacts with key swine and cattle breeding companies are being pursued and there are early indications of significant interest when the technology has been validated.

Commercialization opportunities in other areas are also under investigation. For example, in the ostrich industry, genetic markers to predict egg production, fertility and hatchability, would be of interest. Another application is determining the gender of the ostrich birds, as it is difficult to identify female birds for up to 12 months. Five DNA markers that correlate with the female chromosome have been identified.

Sonata - from the dairy breeding stock

Summary Data:

Current		Cumulative	
1996-97 Award	$115,000	Awards	$215,000
Matching Funds	$409,250	Matching Funds	$1,028,740
Patents Pending	0	Patents Issued	0
Patents Issued	0	License Agreements	0
License Agreements	0	Spin-off Companies	0
Spin-off Companies	0		
Companies Assisted	6		
Industry Jobs	0		
Center Jobs	17		